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Comparison of Four Antiseptic Preparations for Skin in the Prevention of Contamination of Percutaneously Drawn Blood Cultures: a Randomized Trial

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A number of skin antiseptics have been used to prevent the contamination of blood cultures, but the comparative efficacies of these agents have not been extensively evaluated. We therefore sought to compare the efficacy of four skin antiseptics in preventing blood culture contamination in a randomized, crossover, investigator-blinded study conducted in an emergency department and the inpatient wards of a university hospital. The patient group included all patients from whom blood samples were obtained percutaneously for culture. Skin antisepsis was performed with 10% povidone-iodine, 70% isopropyl alcohol, tincture of iodine, or povidone-iodine with 70% ethyl alcohol (i.e., Persist). The blood culture contamination rate associated with each antiseptic was then determined. A total of 333 (2.62%) of 12,692 blood cultures were contaminated during the study period compared to 413 (3.21%) of 12,859 blood cultures obtained during the previous 12-month period (relative risk = 0.82; 95% confidence interval, 0.71 to 0.94; $P = 0.006$). During the study, the contamination rates were determined to be 2.93% with povidone-iodine, 2.58% with tincture of iodine, 2.50% with isopropyl alcohol, and 2.46% with Persist ($P = 0.62$). We detected no significant differences in the blood culture contamination rates among these four antiseptics, although there was some evidence suggesting greater efficacy among the alcohol-containing antiseptics. Among the evaluated antiseptics, isopropyl alcohol may be the optimal antiseptic for use prior to obtaining blood for culture, given its convenience, low cost, and tolerability.

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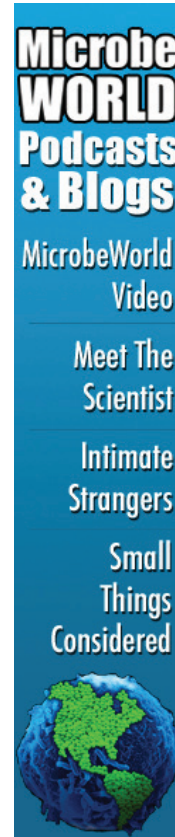
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